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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/822,642  
Filing Date: April 12, 2004  
Appellant(s): HORNE ET AL.

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Peter S. Dardi  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 7/10/2008 appealing from the Office action mailed 2/5/2008.

It is noted that the some pages of the Brief have an incorrect serial number.  
10/822,642 is the correct number. 10/738,534 is incorrect.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

No amendment after final has been filed.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is substantially correct. The changes are as follows: The second listing grounds of rejection should not include claim 44.

**WITHDRAWN REJECTIONS**

The following grounds of rejection are not presented for review on appeal because they have been withdrawn by the examiner. The rejection under 35 USC 112 – second paragraph is withdrawn.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

4,749,396	HICKS	6-1988
4,501,602	MILLER	2-1985
4,684,384	BERKEY	8-1987
3,957,474	KOBAYASHI	5-1976
5,958,348	BI	9-1999

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 103***

Claims 20, 25-26, 39, 41, and 44-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hicks 4749396 in view of Miller 4501602, Berkey 4684384 and Kobayashi 3957474.

**20. A method for forming an optical fiber preform,**

See TITLE of Hicks.

**the method comprising inserting an insert within a glass preform structure,**

See figure 1 of Hicks and col. 3, line 43.

**the insert comprising a coating over a core structure,**

See Hicks, figure 3 and col. 4, lines 55-60.

**wherein the coating on the core structure comprises an oxide composition comprising SiO<sub>2</sub>,**

See col. 3, line 66 of Hicks.

**a rare earth element and a dopant comprising a metal element that is not a rare earth element,**

Hicks does not disclose this. But does disclose the addition of dopants, "where desired" (col. 4, lines 2-4). See also col. 4, lines 60-64 of Hicks which discloses making the preform, and then consolidating the interior, but not the outer layer.

Miller from col. 3, lines 64 to col. 4, lines 17, as well claim 2 (and lines 9-10 of claim 1) which reasonably discloses using combinations of rare earths and non-rare earths in glass. See also col. 1, lines 43-44 which indicate that non-rare earths are common modifiers in glass. It would have been obvious to include the common modifiers/dopants for any of their well-known modifying abilities in the Hicks soot preform, and then consolidate the interior, but leave the outer coating layer intact.

Alternatively, it would have been obvious to make the solid doped core, and then add the coating with dopants, for their well-known modifying abilities. It is noted that at page 15, lines 2-3 Appellant admits that Hicks implies the coating and core should have the same composition. Examiner points this out as an admission that one would understand that if one were using a rare earth plus other dopant in the core, one would understand that the coating would also have the same dopants in the coating.

**the core structure being a glass rod,**

See col. 5, line 43 of Hicks, for example.

**wherein the coating comprises particles having an average primary particle diameter of no more than about 500 nm,**

Hicks does not disclose the size of the fine silica particles (col. 3, line 66) . However Miller teaches particles should not exceed 0.1 microns (i.e. 100 microns) so as to avoid voids (col. 10, lines 38-42, Miller). It would have been obvious to no use any particle larger than 100 nm, so as to avoid voids.

**the coating having a fully densified mass density, wherein the coating has an average density that is a factor within the range from about 0.02 to about 0.55 of the fully densified mass density,**

This is not disclosed by the references.

However it is inherent that it cannot be lower than 0 nor higher than 1.00.

Nothing (solid) can have a density of less than 0, nor can anything have a density higher than 100% of its fully densified mass. Thus, Hick's coating is between 0 and 1.00. The claim range 0.02 – 0.55 covers half of the 0 -1.00 range.

**2144.05 [R-1] Obviousness of Ranges**

See MPEP § 2131.03 for case law pertaining to rejections based on the anticipation of ranges under 35 U.S.C. 102 and 35 U.S.C. 102/103.

**I. OVERLAP OF RANGES**

In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990) (The prior art taught carbon monoxide concentrations of "about 1-5%" while the claim was limited to "more than 5%." The court held that "about 1-5%" allowed for concentrations slightly above 5% thus the ranges overlapped.); In re Geisler, 116 F.3d 1465, 1469-71, 43 USPQ2d 1362, 1365-66 (Fed. Cir. 1997) (Claim reciting thickness of a protective layer as falling within a range of "50 to 100 Angstroms" considered prima facie obvious in view of prior art reference teaching that "for suitable protection, the thickness of the protective layer should be not less than about 10 nm [i.e., 100 Angstroms].") The court stated that "by stating that suitable protection is provided if the protective layer is about 100 Angstroms thick, [the prior art reference] directly teaches the use of a thickness within [applicant's] claimed range."). Similarly, a prima facie case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. Titanium Metals Corp. of America v. Banner, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985) (Court held as proper a rejection of a claim directed to an alloy of "having 0.8% nickel, 0.3% molybdenum, up to 0.1% iron, balance titanium" as obvious over a reference disclosing alloys of 0.75% nickel, 0.25% molybdenum, balance titanium and 0.94% nickel, 0.31% molybdenum, balance titanium.). "[A] prior art reference that discloses a range encompassing a somewhat narrower claimed range is sufficient to establish a prima facie case of obviousness." In re Peterson, 315 F.3d 1325, 1330, 65 USPQ2d 1379, 1382-83 (Fed. Cir. 2003). However, if the reference's disclosed range is so broad as to encompass a very large

number of possible distinct compositions, this might present a situation analogous to the obviousness of a species when the prior art broadly discloses a genus. *Id.* See also *In re Baird*, 16 F.3d 380, 29 USPQ2d 1550 (Fed. Cir. 1994); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992); MPEP § 2144.08.

Since applicant's range covers over half of the prior art range, a prima facie case of obviousness exists. It would have been obvious to perform routine experimentation to determine the optimal process parameters.

**wherein the coating and the core structure have different dopant compositions.**

See Hicks, col. 4, lines 2-7 which teaches adding dopants where desired. Thus Hicks clearly envisioned not having the same exact dopant composition identical throughout the rod. They may be desired in some locations, and not in others. Thus given a dopant composition on the outer layer, it is clear that there is at least one location in the consolidated portion which has a different dopant composition.

Alternatively and/or additionally, since Appellant states on page 15, at line 19, that the core can be undoped, this is deemed to be an admission that an undoped section still has a "dopant composition". Such would be obvious, because it would have been obvious to eliminate the use of dopant in a given portion of the Hicks preform, if the dopant function were not desired in that portion.

**From MPEP 2144.04**

**II. ELIMINATION OF A STEP OR AN ELEMENT AND ITS FUNCTION**

**A. Omission of an Element and Its Function Is Obvious If the Function of the Element Is**



Art Unit: 1791

Not Desired

Ex parte Wu , 10 USPQ 2031 (Bd. Pat. App. & Inter. 1989) (Claims at issue were directed to a method for inhibiting corrosion on metal surfaces using a composition consisting of epoxy resin, petroleum sulfonate, and hydrocarbon diluent. The claims were rejected over a primary reference which disclosed an anticorrosion composition of epoxy resin, hydrocarbon diluent, and polybasic acid salts wherein said salts were taught to be beneficial when employed in a freshwater environment, in view of secondary references which clearly suggested the addition of petroleum sulfonate to corrosion inhibiting compositions. The Board affirmed the rejection, holding that it would have been obvious to omit the polybasic acid salts of the primary reference where the function attributed to such salt is not desired or required, such as in compositions for providing corrosion resistance in environments which do not encounter fresh water.). See also In re Larson, 340 F.2d 965, 144 USPQ 347 (CCPA 1965) (Omission of additional framework and axle which served to increase the cargo carrying capacity of prior art mobile fluid carrying unit would have been obvious if this feature was not desired.); and In re Kuhle, 526 F.2d 553, 188 USPQ 7 (CCPA 1975) (deleting a prior art switch member and thereby eliminating its function was an obvious expedient).

Kobayashi, Berkey and Hicks are only necessary for some of the dependent claims as indicated below.

Claim 25: is clearly met as per the Miller teaching discussed above.

Claim 26: given that Hicks shows the core as round, one would immediately infer that everything should be made symmetrically.

Claim 39: One would immediately infer this because substantially any deposition (such as Hicks CVD) would require the substrate to be in the path of a stream. And it would have been obvious to perform such in a chamber (reactor) so as to protect the artisan, and/or better control the process parameters, and/or prevent contamination.

Claim 41 requires the density to be between 5% and 40% of the theoretical maximum. This covers a third of the possible range. Such is prima facie obvious, applicant has made no showing of criticality. Also, such would have been an obvious matter of routine experimentation. Moreover, one would also understand that the 0-

100% range is just theoretical. One would understand that a glass layer could not be 99% porous. Also one understands, that soot cannot reasonably be 99% dense, spheres cannot be made to pack so tightly.

Claims 44 and 46 require a radiation beam. Hicks does not disclose using a laser in the CVD process. However, Berkey at col. 1, lines 23-27 discloses using a laser (or flame hydrolysis) can be used for the CVD process of making an optical fiber preform. However, it is well understood that flames create water, which is detrimental to glass fibers; lasers avoid this (Kobayashi, col. 1, lines 36-54 and col. 8, lines 4-8). It would have been obvious to use a laser to cause the Hicks CVD so as to avoid the problems of water.

Claim 45: The drawings of Kobayashi and Berkey show arrows which represent rotation. It plainly evident that such is required to obtain the circular profile in Hicks, and thus would have been obvious.

Claim 47: It would have been obvious to provide an extra chamber/shield around the laser portion, so as to protect people from the laser beam. See also Kobayashi which shows the preform extending out of the chamber. Since it is generally obvious to make something as large as needed, it would have been obvious to provide an opening to let the preform stick out of the chamber so as to make a preform as large as desired - without having to create a larger chamber.

Claims 31-38 and 42-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hicks 4749396 in view of Miller 4501602, Berkey 4684384, Kobayashi 3957474 and Bi 5958348.

Independent claim 31 is similar to independent claim 20 and thus Hicks, Miller, Berkey and Kobayashi are applied as above. However, claim 31 also requires that the "the light beam passes through the reactant stream without striking the glass rod". Compare to Kobayashi which strikes the laser on the glass rod. Hicks and Miller discuss nothing about lasers. Berkey (at col. 1, lines 24-27) discloses "the vapor...is introduced into...a laser beam...where it is oxidized to form soot which is directed toward a mandrel."

Bi teaches (at col. 2, lines 16-24) that Bi's method is efficient and has high production capacity. Bi's soot is directed toward a particle trap 422. It would have been obvious to use Bi's method of making particles as the Berkey laser arrangement so as 'to form soot which is directed toward a mandrel' (i.e. toward Hicks' rod) – and then to do the directing – like Berkey's directed soot, 20.

It is noted that (from col. 7, lines 29-37) it is known to make preforms by directly depositing the soot on a target, as well as collecting the soot for later deposition. It would generally not be invention to separate or incorporate the specific steps of creating the soot, and depositing the soot – either by location or time.

**From MPEP 2144.04**

C. Changes in Sequence of Adding Ingredients  
Ex parte Rubin , 128 USPQ 440 (Bd. App. 1959) (Prior art reference disclosing a process of making a laminated sheet wherein a base sheet is first coated with a metallic

film and thereafter impregnated with a thermosetting material was held to render prima facie obvious claims directed to a process of making a laminated sheet by reversing the order of the prior art process steps.). See also In re Burhans, 154 F.2d 690, 69 USPQ 330 (CCPA 1946) (selection of any order of performing process steps is prima facie obvious in the absence of new or unexpected results); In re Gibson, 39 F.2d 975, 5 USPQ 230 (CCPA 1930) (Selection of any order of mixing ingredients is prima facie obvious.).

**From MPEP 2144.04**

**C. Making Separable**

In re Dulberg, 289 F.2d 522, 523, 129 USPQ 348, 349 (CCPA 1961) (The claimed structure, a lipstick holder with a removable cap, was fully met by the prior art except that in the prior art the cap is "press fitted" and therefore not manually removable. The court held that "if it were considered desirable for any reason to obtain access to the end of [the prior art's] holder to which the cap is applied, it would be obvious to make the cap removable for that purpose.").

In other words: using particles directly as they are being produced, is one mode and trapping particles for later is another mode. These modes are obvious variants - absent a showing of secondary considerations. In still further words: making and using particles in a single process, vs making particles in one process then using them in a later process would typically not be considered unobvious variants.

Claims 32-37, 43 and 48 are clearly met in light of the above discussions.

**(10) Response to Argument**

Although the Brief makes assertions about evidence (a Webster's dictionary and WO/02/32588), such is not considered to be evidence - rather assertion of evidence. Such are not mentioned in included in an evidence appendix and thus deemed to be assertions of evidence (assertions given little weight) rather than actual evidence.

It is argued that "the references" fail to disclose the average density factor within the range from about 0.02 to about 0.55. This is not deemed to be relevant. As set forth at least as early as the 10/04/2007 rejection, it would be obvious to have this range - even though "the references" do not teach this. Appellant does not dispute that such would have been obvious. Appellant has not pointed out any error in the finding that since the value cannot be less than 0, nor greater than 1.00, that a prima facie case of obviousness over the broad 0.02-0.55 exists - or that it would have been obvious to perform routine experimentation to determine the optimal processing parameters.

It is also argued that the reference do not teach the particles having a diameter of no more than 500 nm. Examiner disagrees. The Office has pointed out that Miller discloses that particles of less than 100 nm are preferred and that it would have been obvious to use this size. See the 4/4/2006 Office action. No aspect of this has been disputed in the Brief - beyond mere gainsaying. Other discussions regarding why the particle size is not patentable exist in the prosecution history.

It is argued that col. 4, lines 36-40 implies that the composition of the rod and the coating are the same such that they have the same index of refraction after consolidation. Examiner disagrees with applicant's conclusion that one would need the same composition to have the same index of refraction. Just as oxygen and nitrogen have substantially identical index of refraction, it is well within the skill of one of ordinary skill to create two different glass compositions that have identical indices of refraction. Moreover, Examiner does not agree with Appellant (apparent) interpretation of the claims. The claims do not preclude identical compositions: the claim requires "different

dopant compositions" - there is nothing which precludes identical compositions, in addition to the different compositions. Hicks, at col. 4, lines 2-7 clearly indicates that there can be different compositions "[w]here desired". And col. 1, lines 25-28 states the core can have channels, webs and other structures – clearly such would require different compositions. Thus even if applicant's interpretation of the col. 4 passage is correct, one must consider the entire reference - including those which indicate different compositions. In other words, Applicant's claims are open to having a core with any number of different compositions. Only one of them needs to be different from a dopant composition with the core - the rest can have common compositions.

It is argued that Examiners finding that "the term 'dopant composition' encompasses individual dopants" is unreasonable because no person of ordinary skill in the art would read the claim with this construction. Examiner tends to agree with this, but only if one were to read the claim in isolation. But this is an irrelevant standard. The courts have repeatedly held that claims need to be read in light of the specification and prior art. The final rejection set forth an analysis of the term 'dopant composition' using the specification as a template. Appellant has not pointed out any error in the analysis. Moreover, in the Brief (at page 15, lines 17-18) applicant argues that the core could be "undoped silica glass". Examiner fails to see how one would consider an undoped silica glass could have a 'dopant composition'. Appellant offers no analysis as to the meaning of "dopant composition".

Appellant further asserts that one would expect that Hicks would need to have relatively dense glass, because the claimed density such would be too fragile for

machining. Applicant offers no evidence or rationale to support this assertion. Also, glass is a very fragile material to begin with, there is no rationale offered which tends to shown that an even more fragile form of glass would pose any meaningful problem to one of ordinary skill in the glass machining art. On the contrary, the common sense idea of dense wood (or other material) is more troublesome to machine than a lightweight wood (or other material) does not support Appellant's unsupported assertion that dense glass is easier to machine than less dense glass.

Whereas appellant points out that Kobayashi would teach a dense layer, the rejection does not rely on the Kobayashi deposition method. Rather, Kobayashi is relied on to show what is known: the use of a laser avoids the problem of water from flames. Berkey (at col. 1, lines 23-30) provides the teaching of making a soot (i.e. non-dense) coating by use of a laser. Examiner does not rely on the main invention of Kobayashi as evidence of obviousness. That Kobayashi teaches other features (i.e. laser impingement) does not detract from finding that it teaches the concept of choosing laser methods over flame methods. A reference is useful for all it teaches to those skilled in the art. In re Heck, 699 F.2d 1331, 1333 (Fed. Cir. 1983) ("The use of patents as references is not limited to what the patentees describe as their own inventions or to the problems with which they are concerned. They are part of the literature of the art, relevant for all they contain.")

In other words: it would have been obvious to decline to adopt Kobayashi's direct impingement so as to avoid the dense layer (and heed only the advice to avoid flames) – because Keck teaches the desire to have a non-dense layer.

It is argued that Examiner has not established that the coating is performed in flowing reactor. This is not well taken. Examiner present a complete analysis of the claim (set forth below). Such has not been disputed

As to the forming occurring in a flowing reactor: Examiner first interprets "flowing reactor", by giving the term the broadest reasonable interpretation in their ordinary usage in context as they would be understood by one of ordinary skill in the art in light of the written description in the specification, including the drawings, unless another meaning is intended by appellants as established in the written description of the specification, and without reading into the claims any limitation or particular embodiment disclosed in the specification. See, e.g., *In re Am. Acad. Of Sci. Tech. Ctr.*, 267 F.3d 1359, 1364, 70 USPQ2d 1 827, 1830 (Fed. Cir. 2004); *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997); *In re Zletz*, 893 F.2d 319, 321-22, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989). As indicated at page 46, lines 15-17 of the present specification, application 10/119,645 is incorporated by reference. And Gardner 6919054 (based on that application) at col. 5, lines 56-65 suggests that all that is required for a "flow reactor" is a reaction chamber. Thus it is deemed that any chamber of any size and shape, no matter how large or small, which can or does contain a reaction reads on the claimed "flowing reactor". A room is a chamber: it would have been obvious to perform all of the steps in a single room/chamber/building so as to make the article without undue time delays, transportation costs, etc. It is noted that Examiner can not reasonably derive any other definition for "flowing reactor" which would exclude a room, consistent with applicant's disclosure that the reactor comprises a chamber, and yet read on applicant's Figure 1 apparatus.

To the degree that appellant is implying that one of ordinary skill would understand the term to be something else, then such would be taken as an admission that such is well known and thus not something of an inventive nature.

Claims 41 and 43 : it is argued the assertions are deficient. Examiner cannot comment because it not stated what assertions are incorrect, nor is there any indication as to how or why they are deficient.

Regarding the rejection of five references, it is argued that Bi does not teach a suitable coating deposition process. The relevance of this argument is not understood, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413,



208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Bi is relied upon only to show how to make soot particles, not their deposition. Berkey teaches how to do the depositing of the particles: by having them "directed toward a mandrel" (col. 1, lines 26-27). In other words: it would have been obvious to use the Bi particles immediately, rather than collect them for future use.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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